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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/607,560	06/29/2000	Shekhar N. Swamy	MS147163.1	8517

27195 7590 07/02/2003

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EXAMINER

KISS, ERIC B

ART UNIT	PAPER NUMBER
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2122

DATE MAILED: 07/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/607,560

Applicant(s)

SWAMY ET AL.

Examiner

Eric B. Kiss

Art Unit

2122

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 and 26-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16, 18, 20-24 and 26-30 is/are rejected.
- 7) ☒ Claim(s) 17 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 June 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

**DETAILED ACTION**

1. The amendment of June 16, 2003, has been received and entered. Claims 1-24 and 26-30 are pending.

***Response to Amendment***

2. Applicant's cancellation of claim 25 obviates the objection to claim 25 as detailed in the previous office action. Accordingly, this objection is withdrawn in view of Applicant's amendment.

3. Applicant's amendment to claims appropriately addresses the rejection of claim 29 under 35 U.S.C. §112, second paragraph, based on indefiniteness as detailed in the previous office action. Accordingly, this rejection is withdrawn in view of Applicant's amendment. However, the Examiner maintains the rejection (reproduced below) of claims 3-15, 22, and 23, under 35 U.S.C. §112, second paragraph, as discussed below in items 5 and 8.

***Response to Arguments***

4. Applicant's arguments filed June 16, 2003, have been fully considered but they are not persuasive.

Art Unit: 2122

5. On page 13, in paragraphs 5-6 (continuing onto page 14), Applicant argues:

The term “loop” as employed by the applicants is not repugnant to an alternative meaning of the term “loop” as used in the art. The term “loop” when employed as a verb means to “move in loops or in an arc,” *Merriam-Webster Dictionary*, <http://www.m-w.com/cgi-bin/dictionary>. The specification at page 12 lines 7-11 states that “a source loop path node may be used in a subsequent code generation pass... as the point around which the generated code will... loop.” The verb “loop” found at the end of such sentence is referring to the term “source loop path node,” thus rendering the two consistent. A “loop point” is defined in the specification at page 12 lines 17-19 as “a source tree node for which maxoccurs = \*.” The highest-level “loop point” (e.g., a loop point furthest away from its root node) becomes the “source loop path node,” and thus generated code will “loop” around that particular node.

However, the Examiner notes the following flaws in the above argument:

- a) Applicant cites a definition of “loop” as a verb whereas the claimed terminology in question is a noun/adjective.
- b) Applicant’s cited definition is circular, i.e., the term “loops” appears in the cited definition of “loop”.
- c) The URL cited by the Applicant does not, as of the time of this writing, point to a document containing the cited definition or to links making such definition accessible.
- d) The Applicant’s cited definition appears to be less relevant to the art to which the claimed subject matter pertains than the Examiner-cited definition.

6. In response to Applicant’s arguments on pages 14-15, in regards to the rejection under 35 U.S.C. §102(b), Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

Art Unit: 2122

Applicant argues specifically a supposed difference (see page 15, lines 5-9) in chronology between the present invention and the applied reference (*Lindén*) but no chronology appears to be expressed in the rejected claims. Applicant further appears to attempt to express patentable novelty of the present invention in terms of the intended use of the invention (see page 15, lines 9-12) rather than in terms of claimed features.

***Claim Rejections - 35 USC § 112***

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 3-15, 22, and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claims 3-15, 22, and 23, while applicant may be his or her own lexicographer, a term in a claim may not be given a meaning repugnant to the usual meaning of that term. See *In re Hill*, 161 F.2d 367, 73 USPQ 482 (CCPA 1947). The accepted meaning of the term “loop” in the context of the relative arts is as follows:

A collection of nodes in a flow graph such that 1) All nodes in the collection are *strongly connected*; that is, from any node in the loop to any other, there is a path of length one or more, wholly within the loop, and 2) The collection of nodes has a unique *entry*, that is, a node in the loop such that the only way to reach a node of the loop from a node outside the loop is to first go through the entry. [see pages 533-534 of Alfred V. Aho et al. “Compilers: Principles, Techniques, and Tools,” 1986, Addison-Wesley]

Art Unit: 2122

Applicant's use of the term loop in claims 3-15, 22, and 23, does not appear consistent with this accepted meaning.

***Claim Rejections - 35 USC § 102***

9. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

10. Claims 1, 20, 21, 23, 25, 26, 29, and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Greger Lindén, "Structured Document Transformations," 1997, University of Helsinki, Finland, Series of Publications A, Report A-1997-2 (hereinafter *Lindén*).

As per claim 1, *Lindén* discloses a method of generating code representing a mapping between a source schema and a target schema, the mapping comprising data transformations from the source schema to the target schema, the source schema comprising a source tree having a source node and the target schema comprising a target tree having a target node (see "TT-grammars," description on pages 31-34 and illustrative example on pages 34-42), the method comprising: determining source node dependencies for the target node by tracing from the target node through the mapping to the source schema (specifying production group associations and symbol associations; see pages 49-51; and page 32, second paragraph); matching hierarchy by generating a hierarchy match list for the target node (constructing the corresponding target parse

Art Unit: 2122

tree; see “source-to-target mapper” description on page 56); and generating code according to the hierarchy match list (see subsection 4.3.2 on pages 51-52).

As per claims 20 and 25, *Lindén* discloses a method for compiling a mapping between a source schema having source nodes associated therewith, and a target schema having target nodes associated therewith (see “TT-grammars,” description on pages 31-34 and illustrative example on pages 34-42), comprising: determining source node dependencies for at least one target node by tracing from the at least one target node through the mapping to the source schema (specifying production group associations and symbol associations; see pages 49-51; and page 32, second paragraph); matching hierarchy by generating a hierarchy match list for the at least one target node (constructing the corresponding target parse tree; see “source-to-target mapper” description on page 56); and generating code according to the hierarchy match list (see subsection 4.3.2 on pages 51-52).

As per claims 21 and 23, *Lindén* further discloses generating a source dependency list (specifying production group associations and symbol associations; see pages 49-51; and page 32, second paragraph); and initializing node dependencies memory prior to determining source dependencies and later freeing that memory (inherent).

As per claim 26, *Lindén* further discloses matching hierarchy comprising top-down matching (see Algorithm 3.1 on pages 29-30).

As per claim 29, *Lindén* discloses a system for generating code representing a mapping between a source schema and a target schema, the mapping comprising data transformations from the source schema to the target schema, the source schema comprising a source tree having source nodes and the target schema comprising a target tree having a target node (see “TT-

Art Unit: 2122

grammars,” description on pages 31-34 and illustrative example on pages 34-42), the system comprising: means for determining source node dependencies for the target node by tracing from the target node through the mapping to the source schema (specifying production group associations and symbol associations; see pages 49-51; and page 32, second paragraph); means for matching hierarchy by generating a hierarchy match list for the target node (constructing the corresponding target parse tree; see “source-to-target mapper” description on page 56); and means for generating code according to the hierarchy match list (see subsection 4.3.2 on pages 51-52).

As per claim 30, *Lindén* discloses a computer-readable medium having computer-executable instructions for: generating code representing a mapping between a source schema and a target schema, the mapping comprising data transformations from the source schema to the target schema, the source schema comprising a source tree having a source node and the target schema comprising a target tree having a target node (see “TT-grammars,” description on pages 31-34 and illustrative example on pages 34-42); determining source node dependencies for the target node by tracing from the target node through the mapping to the source schema (specifying production group associations and symbol associations; see pages 49-51; and page 32, second paragraph); matching hierarchy by generating a hierarchy match list for the target node (constructing the corresponding target parse tree; see “source-to-target mapper” description on page 56); and generating code according to the hierarchy match list (see subsection 4.3.2 on pages 51-52).



***Claim Rejections - 35 USC § 103***

11. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

12. Claims 2 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Lindén* in view of Alfred V. Aho et al. "Compilers: Principles, Techniques, and Tools," 1986, Addison-Wesley (hereinafter *Aho et al.*).

As per claim 2, *Lindén* discloses such a method (see disclosure applied above to claim 1) but fail to expressly disclose allocating memory for a compiler node; associating the compiler node with the target node; allocating memory for compiler variable classes; and associating compiler variable classes with functoids. However, *Aho et al.* teach allocating memory for a compiler node (obtaining a block of storage); associating the compiler node with the target node (subdividing the storage to hold the generated target code); allocating memory for compiler variable classes (subdividing the storage to hold data objects); and associating compiler variable classes with functoids (keeping track of procedure activations; see "Subdivision of Run-Time Memory" on pages 396-397). Therefore, it would have been obvious to one having ordinary skill in the computer art at the time the invention was made to modify the method of *Lindén* to include memory initialization as per the teachings of *Aho et al.* One would be motivated to do so to establish a run-time environment.

As per claim 16, in addition to the disclosure and teachings applied above, *Lindén* further discloses generating a code header for a root node (pre-processing commands); generating a code

Art Unit: 2122

trailer for the root node (post-processing commands); processing target record nodes in a preexecuteparent function, a postexecuteparent function, and an executeleaf function (processing the pre-processing and post-processing commands); and processing field nodes in the executeleaf function (processing normal spell commands; see the last paragraph on page 55 through the beginning of section 4.4 on page 57). Therefore, for reasons stated above, such a claim also would have been obvious.

13. Claims 18 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Lindén* in view of Alberto Bellina, "XmlTool documentation," 21 January 2003 (hereinafter *Bellina*).

As per claims 18 and 28, *Lindén* discloses such a method (see disclosure applied to claims 1 and 28 above) but fails to expressly disclose creating an XSL style sheet representation of the mapping. However, *Bellina* teaches a tool and method of manipulating XML schemas including generating XSL style sheet representations of mappings (see "XSL generator" on page 12). Therefore, it would have been obvious to one having ordinary skill in the computer art at the time the invention was made to modify the method of *Lindén* to include generation of XSL style sheet representations as per the teachings of *Bellina*. One would be motivated to do so to be able to produce output in a standard transformation language format for use with XML files.

14. Claims 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Lindén*.

As per claim 27, *Lindén* discloses such a method (see disclosure applied above to claim 20) and furthermore discloses the transformation of SGML schemas (see section 2.4 on pages 20-23; and introduction to chapter 5 on page 59) but fails to expressly disclose the source schema

Art Unit: 2122

and target schema being XML schemas. However, *Lindén* teaches the introduction of XML as a subset of SGML and suggests its future use as a replacement for SGML (see last paragraph on page 23). Therefore, it would have been obvious to one having ordinary skill in the computer art at the time the invention was made to modify the SGML schema transformation method of Lindén to include XML schemas as per Lindén's own suggestion. One would be motivated to do so to implement schemas that lack the drawbacks of full SGML.

### *Allowable Subject Matter*

15. Claims 17 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### *Conclusion*

16. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

Art Unit: 2122

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric B. Kiss whose telephone number is (703) 305-7737. The examiner can normally be reached on Tue. - Fri., 7:30 am - 5:00 pm. The examiner can also be reached on alternate Mondays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Dam can be reached on (703) 305-4552.

**Any response to this action should be mailed to:**

Commissioner for Patents  
P.O.Box 1450  
Alexandria, VA 22313-1450

**Or faxed to:**

(703) 746-7239 (for formal communications intended for entry)

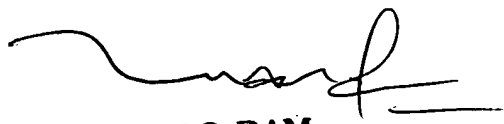
**Or:**

(703) 746-7240 (for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, 22202, Fourth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

EBK/EBK  
June 30, 2003



**TUAN Q. DAM**  
**PRIMARY EXAMINER**